expression "characterized in that" has been canceled and replaced by "wherein". The claim dependency of certain claims has been revised such that these claims no longer depend from canceled claims 7, 10 and 18. In addition, dependent claims 8 and 9 have been amended to cancel the expression "such as a blower".

Regarding the formal rejection of claims 8 and 9, claim 8 relates to a vacuum source and claim 9 relates to a blower device. The device according to reference number 34 in Fig. 2 is a vacuum source.

The above amendments to claim 1 further recite the following claim language:

-"...without a heat treatment or simultaneous compression..." is disclosed on page 3, end of second paragraph in the originally filed U.S. Specification;

-"...directly after creating the hole structure..." is disclosed on page 4, paragraph 4 of the U.S. Specification; and

-"...is bonded in a calendar roller arrangement..." is disclosed on page 4, paragraph 4 of the U.S. Specification.

For all these reasons, the Specification and all the claims are now in complete compliance with the requirements of 35 U.S.C. 112. Withdrawal of this ground of rejection is respectfully requested.

The Applicants comment upon the prior art rejections of the claims as follows:

Drelich U.S. Patent No. 5,244,711 discloses the hydroentanglement of fibers in order to produce a nonwoven structure comprising defined holes, (see FIG. 5 to FIG. 7). The hydroentanglement is generated by water jets which press the fibers into a form that is given by a structure of a surface, (see Fig. 9ff). *Drelich* does compress the fibers to perform a net-like structure, see Fig. 20ff. Due to this hydroentanglement no further bonding is necessary to generate a fleece. This is because the hydroentanglement not only creates openings but simultaneously also creates the fleece. *Drelich* does not use calendar rolls for perforating unbonded fibers; nor does *Drelich* describe how to compress the fibers simultaneously during

perforating. Instead of this a consolidated web is produced according to *Drelich's* teaching, (See Fig. 7, 1).

Whitehead EP0 214,608 describes a perforating process wherein heated pins form consolidated and fused openings in a nonwoven web, (see p. 1, l.10f, p.4, l. 6ff, p.7, 1.28ff, p.14, 1.7ff and p.19, 1.2ff). Furthermore a web will be perforated, (see p. 14, 1.2f). The web designated to be perforated is already bonded, (see p. 5, 1.28 ff, 1.35f). Therefore *Whitehead* does not describe a process wherein after perforating the web a calender will be used for bonding to generate a fleece. Instead of this *Whitehead* teaches that a stabilization of the fibers has to be achieved directly while perforating the web. This also differs from the claimed invention.

Srinivasan U.S. Patent No. 5,830,555 in column 1 lines 58 to 67 and in column 2 lines 1 to 15 discloses a process for producing an apertured nonwoven fabric comprises the steps of combining a carded web of fibers having a higher melting temperature and a polymeric sheet having a lower melting temperature and a property of shrinking under application of

heat, and applying heat and pressure to the combination of the carded fibers and the polymeric sheet through calendering points of a calender roll, such that the melted polymeric sheet becomes bonded to the carded fibers and simultaneously shrinks and pulls back the carded fibers away from the calendering points, thereby generating apertures completely through the nonwoven fabric.

Also, the fibers of the carded web(s) are carded olefinic fibers, preferably polyethylene or polypropylene fibers, and the polymeric sheet is a thin plastic film of olefinic material, such as a linear low density polyethylene (LLDPE) diaper backsheet film, or elastomeric material, or heat shrink material. The apertured product can have anywhere from 1-50% open (apertured) area. The process can be utilized for apertured nonwoven fabrics having basis weights ranging anywhere from 10.1 to 90.0 grams/yd^2 (gsy). One outer carded web may be combined with the polymeric sheet to form a bi-laminate product, or two outer carded webs may be combined with an intermediate polymeric sheet to form a tri-laminate product.

Thus *Srinivasan* fails to teach or to suggest the claimed invention.

Griswold U.S. Patent No. 3,081,515 discloses in column 1 lines 60 to 70 and in column 2 lines 1 to 19 a nonwoven fabric wherein the fibers are arranged to define a predetermined pattern of holes or openings with most of the fiber segments bordering the holes extending in substantial parallelism with portions of their perimeters. In general, fibers are oriented in interconnected groupings or web as extending between the holes in a predetermined pattern corresponding to the aforementioned pattern of holes. The resulting fabric may be made to resemble particular woven or knitted fabric. The groupings or groups are connected by fibers extending from one to another in such a way that they are common to a plurality of groupings.

The length of the fibers is considerably greater than the lengths of the groups containing them with the result that the groups predominately comprise only parts or segments passing through them. Preferably the fibers average at least about 1/4 inch in length and are textile-like in nature, i.e., flexible and distinct or unbeaten in the case of wood pulp. In general, the groupings are connected at junctures wherein individual fibers extend in a plurality of diverse directions, while the fiber

segments in the groups are relatively parallelized with respect to one another and more closely assembled than at the junctures.

In one embodiment of a fabric according to *Griswold*, the fiber segments in the groups are closely associated and substantially parallelized along the axes of the groups to the extent that the groups resemble spun yarns. The segments may be so closely arranged in overlapping relationship about the axes of the groups that the groups possess yarn-like thickness and are generally yarn-like in cross section.

Thus *Griswold* fails to teach or to suggest the claimed invention.

The *Karger British Patent No. 1,224,786*, on page 3 in lines 103 to 130 and on page 4 in lines 1 to 20 discloses a method and apparatus for fabricating high strength fibre-reinforced sheets or mouldings provided with perforations, preferably sound-absorbing mouldings consisting of plaster, which is suitable for semi-automatic production.

To this end, there is a method of manufacturing high strength fibre-reinforced sheets or mouldings provided with holes, preferably sound absorbing mouldings consisting of plaster. The fibres of a fleece are displaced in the region of the holes by means of penetrating conical mandrels and are consolidated at the hole edges. The fleece is located in a mould with a liquid or pasty binding agent, and after the binding agent has set the resultant sheet or moulding is removed from the mould.

The fleece is perforated by means of a perforating device on which mandrels are arranged at predetermined intervals. A relative movement between the fleece and the mandrels other than the penetration movement is superimposed on the penetration movement. The perforating device with the fleece adhering to the mandrels is then introduced into the mould which is provided with frusto-conical or frusto-pyramidal cores arranged opposite the mandrels. This is forced by means of a stripper onto the surfaces of the mould, located between the cores, whereafter the mould is either filled in the open condition with a binding agent up to the level of the top of the cores, or is closed with a cover plate and the binding agent is forced in under pressure.

In order to prevent breakage or tearing of the fibers of the fleece when the mandrels are pressed into the fleece, it is provided that during the penetration phase of the mandrels into the fleece a circular relative movement oriented in the plane of the fleece is effected between the fleece and the mandrels. The perforating device and/or the fleece execute a vibration with components occurring predominately in the plane of the fleece.

Thus *Karger* fails to teach or suggest the claimed invention.

For all these reasons, none of the prior art references provide an identical disclosure of the claimed invention. Hence the present invention is not anticipated under 35 U.S.C. 102. Withdrawal of this ground of rejection is respectfully requested.

In summary, claims 7, 10 and 18 have been canceled, and claims 1 to 6, 8, 9, 11 to 17, and 19 to 24 have been amended.

In view of the above amendments, the invention and all the claims are believed to be patentable under 35 U.S.C. 103. Withdrawal of this ground of rejection is respectfully requested. A prompt notice of allowability is respectfully requested.

Respectfully submitted,

ETZOLD ET AL - 1 PCT

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Enclosure:
(1) Marked-Up Version of Amended Claims and Specification.

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Assistant Commissioner of Patents, Washington, D.C. 20231, on August 28, 2002.

Maria Guastella

MARKED - UP VERSION
OF
AMENDED CLAIMS AND SPECIFICATION

1. (Amended) A procedure to create a fleece (44) made of fibers (14) with numerous hole structures (36) extending over the entire cross-section of the fleece (44), [whereby:] comprising:

-in a first step, the fibers (14) are randomly placed on a perforated belt (16) to form a fibrous web (18),

-in a second step, the fibrous web (18) is transported to a hole-structure-creating unit (20; 20a),

-the hole-structure-creating unit (20; 20a) is a calendar having two rollers (22,26; 40a) with facing surfaces (24, 28; 28a) between which the fibrous web (18) is guided, whereby the surface (24) of a first roller has numerous barbs (30) facing the fibrous web (18, and whereby the surface (28; 28a) of a second roller (26; 40a) has openings (32, 32a) in which the barbs (3) of the first surface (24) can at least partially enter, whereby the fibers (14) of the fibrous web (18) below the barbs (30) are displaced without being destroyed when the barbs (30) sink into the openings (32; 32a) and the hole structures (36) are formed without a heat treatment or simultaneous compression,

-in a third step, the hole structures (36) are created by mechanically displacing the fibers (14), whereby the displacement of the fibers (14) does not influence their mechanical and chemical structure, and

-in a fourth step, directly after creating the hole structure, the fibrous web (18) with the hole structures (36) is bonded in a calender roller arrangement [bonding unit] (38; 38a) to form a fleece (44).

2. (Amended) A procedure according to claim 1, [characterized in that] wherein the fibrous web (18) is transformed by stiffening and thermobonding to form a fleece (44).

3. (Amended) A procedure according to claim 2, [characterized in that] wherein before the third step, the fibrous web (18) is prebonded so that the tensile strength of the prebonded fibrous web (18) is 0.1 to 75% and especially 50% of the tensile strength of the bonded fleece (44).

4. (Twice Amended) A procedure according to claim 1, wherein [characterized in that] the fibers (14) surrounding the hole structures (36) are fixed before feeding the fibrous web (18) to the bonding unit (38; 38a).

5. (Twice Amended) A procedure according to claim 1, [characterized in that] wherein the fibrous web (18) is fed directly to the bonding unit (38; 38a) after the hole structure (36) is created.

6. (Amended) A procedure according to claim 5, [characterized in that] wherein the fourth step directly follows the third step.

8. (Amended) A procedure according to claim 1, wherein [claim 7, characterized in that] the openings (32; 32a) of the second surface (28; 28a) communicate with a vacuum source (34) [such as a blower] so that fibers (14) of the fibrous web (18) in the area of the openings (32; 32a) are sucked into the openings (32; 32a).

9. (Amended) A procedure according to claim 1, wherein [claim 7, characterized in that] the openings (32; 32a) of the second surface (28; 28a) communicate with a pressure source (34) [such as a blower] so that fibers (14) of the fibrous web (18) in the area of the openings (32; 32a) are blown out of the openings (32; 32a).

11. (Amended) A procedure according to claim 1, wherein [claim 10, characterized in that] the roller (22) has a diameter of 100-500 mm.

12. (Twice Amended) A procedure according to [claim 7] claim 1, wherein [characterized in that] the first element (22) is a lowering and raising plate.

13. (Twice Amended) A procedure according to [claim 7] claim 1, wherein [characterized in that] the barbs (30) of the first element (22) are conical.

14. (Twice Amended) A procedure according to [claim 7] claim 1, wherein [characterized in that] the barbs (3) have an involuted shaped.

15. (Twice Amended) A procedure according to [claim 7] claim 1, wherein [characterized in that] the barbs (30) have an ogival cross-section.

16. (Twice Amended) A procedure according to [claim 7] claim 1, wherein [characterized in that] the barbs are 0.5-5 mm high.

17. (Twice Amended) A procedure according to [claim 7], claim 1, wherein [characterized in that] the second element (26) is a perforated belt (26).

19. (Twice Amended) A fleece (44) created according to a procedure in claim 1, [characterized in that] wherein the hole structures (36) have a diameter of 0.5-5 mm.

20. (Amended) A fleece according to claim 19, [characterized in that] wherein the bonding surface is 3-40% of the fleece surface.

21. (Twice Amended) A fleece according to claim 19, wherein [characterized in that] the number of bonding points (48) is 20-120 per square centimeter.

22. (Twice Amended) A fleece according to claim 19, wherein [characterized in that] the shape of the hole structures (36) is noncircular.

23. (Twice Amended) A fleece according to claim 19, wherein [characterized in that] the distance between individual hole structures (36) is irregular.

24. (Twice Amended) A fleece (44) manufactured according to claim 1, wherein [characterized in that] the fibrous web (18) is bonded to at least one other sheet medium before creating the hole structures (36).